

Claims

What is claimed is:

1. A system for filling at least one order, comprising:

at least one order consolidation station configured to receive at least one bottle containing pills individually counted and at least one package containing pharmaceutical products

5 without having been pre-designated for the at least one order when the at least one package was created, wherein the at least one bottle is specifically designated for the at least one order and wherein the at least one order includes at least one prescription for the at least one package, and

10 the order consolidation station being further configured to combine automatically the at least one bottle and the at least one package to send the combined the at least one bottle and the at least one package to at least one recipient corresponding to the at least one order, to thereby fill the one
15 of at least one order.

2. The system of claim 1, wherein the at least one order consolidation station is further configured to receive at least one literature pack containing printed literature relating to the
20 at least one order and comprising patient specific information associated with the at least one order, and configured to combine

the at least one literature pack with the combined at least one bottle and the at least one package.

3. The system of claim 1, further comprising:

5 a package storage device having an array of locations and configured to store the at least one package into one of the array of locations; and

a package dispenser configured to identify the one of the array of locations, obtain the at least one package from the
10 one of the array of locations and send the at least one package to the order consolidation station.

4. The system of claim 1, further comprising:

a package storage device having an array of locations
15 and configured to store

a plurality of packages into the array of locations and store the at least one package into one of the array of locations; and

a package dispenser configured to identify the one of
20 the array of locations, obtain the at least one package from the one of the array of locations and send the at least one package to the order consolidation station.

5. The system of claim 3, wherein the package dispenser further includes a package label printer to print at least one label for the at least one package, wherein the label is printed
5 with patient specific information including instructions by a prescribing doctor to the patient.

6. The system of claim 5, the package dispenser further includes a labeler to configure the at least one label having a
10 sufficiently small footprint to be affixed on the at least one package.

7. The system of claim 5, wherein the package dispenser further includes an error detection system configured to detect
15 and read the label affixed on the at least one package and configured to reject the at least one package and the label if an incorrect label is affixed thereto.

8. The system of claim 1, further comprising:
20 a bottle storage device having an array of locations and configured to store the at least one bottle into one of the array of locations; and

a bottle dispenser configured to identify the one of the array of locations and send the at least one bottle from the one of the array of the locations to the order consolidation station.

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9. The system of claim 8, wherein the bottle dispenser comprises:

a metal detector configured to detect a presence of a metallic substance in the at least one bottle, wherein the bottle dispenser is further configured to reject the at least one bottle if a metallic substance is detected therein.

10. The system of claim 8, wherein the bottle dispenser comprises:

a bottle buffer configured to receive the at least one bottle belonging to the one of at least one order, wherein the bottle buffer is disposed and configured to release the received at least one bottle into a container.

11. The system of claim 1, wherein the system further comprises a packager configured to open a container to receive the at least one bottle and at least one package into the container.

12. The system of claim 11, wherein the packager comprises:

a a printer configured to print an address or internal control information, and wherein the packager is further configured to affix the address or the internal control
5 information on the container.

13. A system for filling at least one order, comprising:

a bottle handling station configured to store and
10 dispense at least one bottle containing pills individually counted, wherein the at least one bottle is specifically designated for the at least one order;

a package handling station configured to store and dispense at least one package containing pharmaceutical products
15 without having been pre-designated for the at least one order when the at least one package was created, wherein the at least one order includes at least one prescription for the at least one package; and

an order consolidation station configured to combine
20 the at least one bottle and the at least one package to send the combination of the at least one bottle and the at least one package to at least one recipient corresponding to the at least one order, to thereby fill the at least one order.

14. The system of claim 13, further comprising:

a literature handling station configured to store and dispense at least one literature pack containing printed literature relating to the at least one order and patient specific information,

wherein the order consolidation station is further configured to receive the at least one literature pack and combine the at least one literature pack with the received at least one bottle and the at least one package.

15. The system of claim 13, wherein the package handling station comprises:

a package storage device having an array of locations and configured to store the at least one package into one of the array of locations; and

a package dispenser configured to identify the one of the array of locations, obtain the at least one package from the one of the array of locations and send the at least one package to the order consolidation station.

16. The system of claim 15, wherein the package dispenser further includes a package label printer to print at least one label for the at least one package, wherein the label is printed with patient specific information including instructions by a
5 prescribing doctor to the patient.

17. The system of claim 16, the package dispenser further includes a device designed to configure the at least one label into a sufficiently small footprint to be affixed on the at
10 least one package.

18. The system of claim 16, wherein the package dispenser further includes an error detection system configured to detect and read the label affixed on the at least one package and
15 configured to reject the at least one package and the label if an incorrect label is affixed thereto.

19. The system of claim 13, wherein the bottle handling station comprises:

20 a bottle storage device having an array of locations and configured to store the at least one bottle into one of the array of locations; and

a bottle dispenser configured to identify the one of the array of locations and send the at least one bottle from the one of the array of the locations to the order consolidation station.

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20. The system of claim 19, wherein the bottle dispenser comprises:

a metal detector configured to detect a presence of a metallic substance in the at least one bottle, wherein the bottle dispenser is further configured to reject the at least one bottle if a metallic substance is detected therein.

21. The system of claim 19, wherein the bottle dispenser comprises:

a bottle buffer configured to receive the at least one bottle belonging to the one of at least one order, wherein the bottle buffer is disposed and configured to release all received at least one bottle into a container.

22. The system of claim 13, wherein the system further comprises a packager configured to open a container to receive the at least one bottle and at least one package into the container.

23. The system of claim 22, wherein the packager comprises:

a printer configured to print an address or internal control information, wherein the packager is further configured
5 to affix the address or the internal control information on the container.

24. A system for filling a plurality of orders, comprising:

10 a package handling station configured to store a plurality of packages containing pharmaceutical products without having been designated for any of the plurality of orders when the plurality of packages is created,

a literature handling station configured to store a
15 plurality of literature packs each containing printed literature relating to one of the plurality of orders and configured to coordinate the literature packs with respect to corresponding orders;

a computer system configured to monitor the package
20 handling and literature handling stations and configured to cause the package handling station to dispense the plurality of packages in coordination with the dispensing of the plurality of literature packs by the literature handling station ; and

an order consolidation station configured to receive the packages and the literature packs coordinated with respect to the corresponding orders and configured to combine the packages and the literature packs belonging to the corresponding orders.

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25. The system of claim 24, further comprising:

a bottle handling station configured to store a plurality of bottles each containing pills individually counted,
10 wherein each bottle is specifically designated for one of the plurality of orders,

wherein the computer system is further configured to monitor the bottle handling station and cause the bottle handling station to dispense the bottles in coordination with the
15 dispensing of the plurality of literature packs by the literature handling station with respect to corresponding orders, and

wherein the order consolidation station is further configured to receive the bottles coordinated with respect to the corresponding order and configured to combine the bottles
20 associated with the corresponding orders with the combined packages and literature packs.

26. The system of claim 24, wherein the computer system is further configured to detect an error when the packages received by the order consolidation station do not correspond with the literature packs.

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27. The system of claim 25, wherein the computer system is further configured to detect an error when the bottles received by the order consolidation station do not correspond with the literature packs.

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28. A method for filling at least one order, the method comprising the steps of:

receiving at least one bottle containing pills individually counted and at least one package containing pharmaceutical products without having been pre-designated for the at least one order when the at least one package was created, wherein the at least one bottle is specifically designated for the at least one order and wherein the at least one order includes at least one prescription for the at least one package, and

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automatically combining the at least one bottle and the at least one package to send the at least one bottle and the at least one package to at least one recipient corresponding to the at least one order, to thereby fill the at least one order.

29. The method of claim 28, further comprising the step of:

receiving at least one literature pack containing
printed literature relating to the at least one order and patient
5 specific information and configured to combine the at least one
literature pack with the at least one bottle and the at least one
package.

30. The method of claim 28, further comprising the steps
10 of:

storing the at least one package into one of an array
of locations of a package storage device;

identifying the one of the array of locations; and

obtaining the at least one package from the one of the
15 array of locations.

31. The method of claim 30, further comprising the step of:

printing at least one label for the at least one
package, wherein the label is printed with patient specific
20 information including instructions by a prescribing doctor to the
patient.

32. The method of claim 31, further comprising the step of:

configuring the at least one label into a sufficiently
small footprint to be affixed on the at least one package.

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33. The method of claim 31, further comprising the steps
of:

detecting and reading the label affixed on the at least
one package; and

10 rejecting the at least one package and the label if an
incorrect label is affixed thereto.

34. The method of claim 28, further comprising the steps
of:

15 storing the at least one bottle into one of an array of
locations in a bottle storage device; and

identifying the one of the array of locations.

35. The method of claim 34, further comprising the steps
20 of:

detecting the presence of a metallic substance in the
at least one bottle; and

rejecting the at least one bottle if a metallic
substance is detected therein.

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36. The method of claim 28, further comprising the step of:

opening a container to receive the at least one bottle
and the at least one package into the container.

10 37. The method of claim 36, further comprising the steps
of:

printing an address or internal control information;
and

affixing the address or the internal control
15 information on the container.

38. A method for filling at least one order, the
method comprising the steps of:

storing and dispensing at least one bottle containing
20 pills individually counted, wherein the at least one bottle is
specifically designated for the at least one order;

storing and dispensing at least one package containing pharmaceutical products without having been designated for any of the at least one order when the at least one package was created, wherein the at least one order includes at least one prescription
5 for the at least one package; and

combining the at least one bottle and the at least one package to send the at least one bottle and the at least one package to at least one recipient corresponding to the at least one order ,

10 to thereby fill the at least one order.

39. The method of claim 38, further comprising the steps of:

storing and dispensing at least one literature pack
15 containing patient specific printed literature relating to the at least one order; and

receiving the at least one literature pack and combining the at least one literature pack with the at least one bottle and the at least one package.

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40. A system for filling at least one order, comprising:

at least one order consolidation means for receiving at least one bottle containing pills individually counted and at least one package containing pharmaceutical products without having been pre-designated for the at least one order when the at least one package was created, wherein the at least one bottle is specifically designated for the at least one order and wherein the at least one order includes at least one prescription for the at least one package, and

the order consolidation means being further configured for automatically combining the at least one bottle and the at least one package into a container to be sent to at least one recipient corresponding to the at least one order, to thereby fill the one of at least one order.

41. The system of claim 40, wherein the order consolidation means is further configured for receiving at least one literature pack containing printed literature relating to the at least one order and patient specific information and combining the at least one literature pack with the at least one bottle and the at least one package.

42. The system of claim 40, further comprising:

a package storage means, having an array of locations, for storing the at least one package into one of the array of locations; and

a package dispense means for identifying the one of the
5 array of locations, obtaining the at least one package from the one of the array of locations and sending the at least one package to the order consolidation means.

43. The system of claim 42, wherein the package dispense
10 means includes a package label printer to print at least one label for the at least one package, wherein the label is printed with patient specific information including instructions by a prescribing doctor to the patient.

15 44. The system of claim 43, the package dispense means further includes a device designed to configure the at least one label into a sufficiently small footprint to be affixed on the at least one package.

20 45. The system of claim 43, wherein the package dispense means further includes an error detection system configured to detect and read the label affixed on the at least one package and

reject the at least one package and the label if an incorrect label is affixed thereto.

46. The system of claim 40, further comprising:

5 a bottle storage means, having an array of locations, for storing the at least one bottle into one of the array of locations; and

 a bottle dispense means for identifying the one of the array of locations and sending the at least one bottle from the
10 one of the array of the locations to the order consolidation means.

47. The system of claim 46, wherein the bottle dispense means comprises:

15 a metal detector means for detecting the presence of a metallic substance in the at least one bottle, wherein the bottle dispense means is further configured for rejecting the at least one bottle if a metallic substance is detected therein.

20 48. The system of claim 46, wherein the bottle dispense means comprises:

a bottle buffer means for receiving the at least one bottle belonging to the one of at least one order, wherein the bottle buffer means is disposed and configured to release all received at least one bottle into a container.

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49. The system of claim 40, wherein the system further comprises a packager means for opening the container to receive the at least one bottle and the at least one package into the container.

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50. The system of claim 49, wherein the packager means comprises:

aprinter means for printing an address or internal control information, wherein the packager means is further
15 configured for affixing the address or the internal control information on the container.

51. A system for filling at least one order, comprising:

a bottle handling means for storing and dispensing at
20 least one bottle containing pills individually counted, wherein the at least one bottle is specifically designated for the at least one order;

a package handling means for storing and dispensing at least one package containing pharmaceutical products without having been designated for any of the at least one order when the at least one package was created, wherein the at least one order
5 includes at least one prescription for the at least one package;
and

an order consolidation means for combining the at least one bottle and the at least one package into a container to be sent to at least one recipient corresponding to the at least
10 one order ,

to thereby fill the at least one order.

52. The system of claim 51, further comprising:

a literature handling means for storing and dispensing
15 at least one literature pack containing printed literature
relating to the at least one order,

wherein the order consolidation means is further configured for receiving the at least one literature pack and combining the at least one literature pack with the at least one
20 bottle and the at least one package.

53. A system for filling a plurality of orders, comprising:

package handling means for storing a plurality of packages containing pharmaceutical products without having been designated for any of the plurality of orders when the plurality of packages is created;

5 literature handling means for storing a plurality of literature packs each containing printed literature relating to one of the plurality of orders and configured to coordinate the literature packs with respect to corresponding orders;

10 a computer system configured to monitor the package handling and literature handling means and for controlling the package handling means to dispense the plurality of packages in coordination with the dispensing of the plurality of literature packs by the literature handling means; and

15 order consolidation means for receiving the packages and the literature packs coordinated with respect to the corresponding orders and for combining the packages and the literature packs belonging to the corresponding orders.

54. The system of claim 53, further comprising:

20 bottle handling means for storing a plurality of bottles each containing pills individually counted, wherein each bottle is specifically designated for one of the plurality of orders,

wherein the computer system is further configured to monitor the bottle handling means and cause the bottle handling means to dispense the bottles in coordination with the dispensing of the plurality of literature packs by the literature handling
5 means with respect to corresponding orders, and

wherein the order consolidation means is further configured to receive the bottles coordinated with respect to the corresponding order and configured to combine the bottles associated with the corresponding orders with the combined
10 packages and literature packs.

55. A bottle storage apparatus, comprising:

a plurality of storage locations, each storage location having a top side and a bottom side;

a stoppage mechanism disposed on the bottom side of
15 each of the plurality of tubes, the stoppage mechanism having an open position and a closed position;

a first gantry mechanism having a means for obtaining a bottle and feeding the bottle to one of the plurality of storage locations via the top side thereof, wherein the bottle is held by
20 the one of the plurality of tubes when the stoppage mechanism is in the closed position;

a second gantry mechanism having a means for moving the stoppage mechanism from the closed position to the open position;
and

a computer system coupled to the first and second gantry mechanisms and capable of identifying a storage location, wherein the computer system is configured to instruct the first gantry mechanism to pick up one or more bottles belonging to a
5 order and to feed the one or more bottles to one or more of the plurality of storage locations, wherein the computer system is further configured to instruct the second gantry mechanism to control the stoppage mechanism of the one or more of the plurality of storage locations from the close position to the
10 open position when all of the one or more bottles belonging to the order has been fed to the one or more of the plurality of storage locations.

56. The device of claim 55, wherein the plurality of tubes
15 form a table and wherein the first gantry mechanism is disposed on a top side of the table and the second gantry mechanism is disposed on a bottom side of the table.

57. A system of filling a plurality of order,
20 comprising:

a belt mechanism including a plurality of locations each of which is capable of carrying a pack of printed material belong to a order;

a bottle storage table including a plurality of tubes to store at least one bottle belonging to the order;

a first conveyor located to receive the at least one bottle from the bottle storage table and having a moving surface
5 to move the at least one bottle received from the bottle storage table;

means for receiving and holding the at least one bottle;

a plurality of shelf locations, wherein each shelf
10 location contains at least one package belonging to the order;

a first robot mechanism having an end effector to obtain the at least one package and a means to release the at least one package;

a second conveyor having a moving surface to move the
15 at least one package received from the first robot mechanism;

a second robot mechanism having an end effector to pick up the at least one package;

a packager to open and hold a container; and

a computer system configured to instruct the belt
20 mechanism to convey at least one pack of printed material and

discharge the at least one pack into the container, instruct the bottle storage table to release the at least one bottle, instruct the first conveyor to move the at least one bottle and dispose the at least one bottle into the container, instruct the first
5 robot mechanism to obtain the at least one package and release the at least one package onto the second conveyor, instruct the second conveyor to move the at least one package, and instruct the second robot mechanism to obtain and dispose the at least one package into the container.

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58. The system of claim 11, wherein the packager comprises a bagger system, and wherein said container comprises a bag.

59. The system of claim 58, wherein the bagger system
15 comprises:

a printer configured to print an address or internal control information, and wherein the bagger system is further configured to affix the address or the internal control information on the bag.

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60. The system of claim 22, wherein the packager comprises a bagger system, and wherein said container comprises a bag.

61. The system of claim 60, wherein the bagger system
5 comprises:

a printer configured to print an address or internal control information, and wherein the bagger system is further configured to affix the address or the internal control information on the bag.

10 62. The system of claim 24, wherein the order consolidation station is configured to receive the packages and the literature packs in the order sequence in which the literature packs are stored with respect to the corresponding orders.

15 63. The system of claim 62, wherein the computer system is further configured to detect an error when the packages are not received by the order consolidation station in the order sequence in which the literature packs are stored.

20 64. The system of claim 25, wherein the order consolidation station is configured to receive the bottles and the literature packs in the order sequence in which the literature packs are stored with respect to the corresponding orders and configured to

combine the bottles associated with the corresponding orders with the combined packages and literature packs.

65. The system of claim 64, wherein the computer system is further configured to detect an error when the bottles are not
5 received by the order consolidation station in the order sequence in which the literature packs are stored.

66. The system of claim 53, wherein the order consolidation means is configured to receive the packages and the literature packs in the order sequence in which the literature packs are
10 stored with respect to the corresponding orders.

67. The system of claim 66, wherein the computer system is further configured to detect an error when the packages are not received by the order consolidation means in the order sequence in which the literature packs are stored.

15 68. The system of claim 54, wherein the order consolidation means is configured to receive the bottles and the literature packs in the order sequence in which the literature packs are stored with respect to the corresponding orders and configured to combine the bottles associated with the corresponding orders with
20 the combined packages and literature packs.

69. The system of claim 68, wherein the computer system is further configured to detect an error when the bottles are not

received by the order consolidation means in the order sequence in which the literature packs are stored.

70. A system for filling at least one order,
5 comprising:

at least one order consolidation station configured to receive at least one literature pack containing printed literature relating to the at least one order and comprising patient specific information associated with the at least one
10 order, and configured to receive at least one package containing pharmaceutical products without having been pre-designated for the at least one order when the at least one package was created, wherein the at least one package is specifically designated for the at least one order, and wherein the at least one order
15 includes at least one prescription for the at least one package, and

the order consolidation station being further configured to combine automatically the at least one literature pack and the at least one package to send the combined the at
20 least one literature pack and the at least one package to at least one recipient corresponding to the at least one order, to thereby fill the at least one order.

71. The system of claim 70, wherein the at least one order consolidation station is further configured to receive at least one bottle containing pills individually counted and at least one package containing pharmaceutical products without having been
5 pre-designated for the at least one order when the at least one package was created, and wherein the at least one bottle is specifically designated for the at least one order and wherein the at least one order includes at least one prescription for the at least one package, and wherein the at least one order
10 consolidation station is configured to combine the at least one literature pack with the combined at least one bottle and the at least one package.

72. The system of claim 70, further comprising:

a package storage device having an array of locations
15 and configured to store the at least one package into one of the array of locations; and

a package dispenser configured to identify the one of the array of locations, obtain the at least one package from the one of the array of locations and send the at least one package
20 to the order consolidation station.

73. The system of claim 70, further comprising:

a package storage device having an array of locations and configured to store

a plurality of packages into the array of locations and store the at least one package into one of the array of locations; and

5 a package dispenser configured to identify the one of the array of locations, obtain the at least one package from the one of the array of locations and send the at least one package to the order consolidation station.

74. The system of claim 72, wherein the package dispenser
10 further includes a package label printer to print at least one label for the at least one package, wherein the label is printed with patient specific information including instructions by a prescribing doctor to the patient.

15 75. The system of claim 74, the package dispenser further includes a labeler to configure the at least one label having a sufficiently small footprint to be affixed on the at least one package.

20 76. The system of claim 74, wherein the package dispenser further includes an error detection system configured to detect and read the label affixed on the at least one package and

configured to reject the at least one package and the label if an incorrect label is affixed thereto.

77. The system of claim 71, further comprising:

5 a bottle storage device having an array of locations and configured to store the at least one bottle into one of the array of locations; and

 a bottle dispenser configured to identify the one of the array of locations and send the at least one bottle from the
10 one of the array of the locations to the order consolidation station.

78. The system of claim 77, wherein the bottle dispenser comprises:

15 a metal detector configured to detect a presence of a metallic substance in the at least one bottle, wherein the bottle dispenser is further configured to reject the at least one bottle if a metallic substance is detected therein.

20 79. The system of claim 77, wherein the bottle dispenser comprises:

a bottle buffer configured to receive the at least one bottle belonging to the one of at least one order, wherein the bottle buffer is disposed and configured to release the received at least one bottle into a container.

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80. The system of claim 70, wherein the system further comprises a packager configured to open a container to receive the at least one literature pack and the at least one package into the container.

10 81. The system of claim 80, wherein the packager comprises:

a a printer configured to print an address or internal control information, and wherein the packager is further configured to affix the address or the internal control information on the container.

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82. A method for filling at least one order, the method comprising the steps of:

receiving at least one literature pack containing printed literature relating to the at least one order and patient specific information and at least one package containing pharmaceutical products without having been pre-designated for the at least one order when the at least one package was created,

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and wherein the at least one order includes at least one prescription for the at least one package, and

automatically combining the at least one literature pack and the at least one package to send the at least one
5 literature pack and the at least one package to at least one recipient corresponding to the at least one order, to thereby fill the at least one order.

83. The method of claim 82, further comprising the step of:

10 receiving at least one bottle containing pills individually counted and configured to combine the at least one literature pack with the at least one bottle and the at least one package, and wherein the at least one bottle is specifically designated for the at least one order.

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84. The method of claim 82, further comprising the steps of:

storing the at least one package into one of an array of locations of a package storage device;

20 identifying the one of the array of locations; and

obtaining the at least one package from the one of the array of locations.

85. The method of claim 84, further comprising the step of:

printing at least one label for the at least one
package, wherein the label is printed with patient specific
5 information including instructions by a prescribing doctor to the
patient.

86. The method of claim 85, further comprising the step of:

configuring the at least one label into a sufficiently
10 small footprint to be affixed on the at least one package.

87. The method of claim 85, further comprising the steps
of:

detecting and reading the label affixed on the at least
15 one package; and

rejecting the at least one package and the label if an
incorrect label is affixed thereto.

88. The method of claim 83, further comprising the steps
20 of:

storing the at least one bottle into one of an array of locations in a bottle storage device; and

identifying the one of the array of locations.

5 89. The method of claim 88, further comprising the steps of:

detecting the presence of a metallic substance in the at least one bottle; and

10 rejecting the at least one bottle if a metallic substance is detected therein.

90. The method of claim 83, further comprising the step of:

opening a container to receive the at least one bottle and the at least one package into the container.

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91. The method of claim 90, further comprising the steps of:

printing an address or internal control information; and

20 affixing the address or the internal control information on the container.